

This chapter presents those social and economic factors that have an impact on environmental conditions.

Demographic Profile

Population, population density, and growth

The population of the three districts of Kathmandu Valley increased from 1,107,370 in 1991 to 1,647,092 in 2001. The annual population growth rate in Kathmandu district was 4.71%. The population of Kathmandu district was 675,341 in 1991 (3.6% of Nepal's population) and 1,081,845 in 2001 (4.6% of Nepal's population). The population density¹ of Kathmandu district was 1,069 in 1981; 1,710 in 1991, and 2,739 in 2001 (Tables 2.1 and 2.2). The sex ratios² for the three districts of Kathmandu Valley are presented in Table 2.3.

Table 2.3 shows that the male population is higher than the female population. The sex ratio is higher for Kathmandu district. In the national context also, the sex ratio of Kathmandu district is the highest. This record differs from the rest of the hills because in other hill districts females are dominant.

The three districts of Kathmandu Valley consist of five municipalities and 114 VDCs. According to the Local Self Governance Act, 1999, urban areas are classified into Metropolitan Cities, Sub-Metropolitan Cities, and Municipalities. As per this Act, there are three municipalities (Bhaktapur, Madhyapur, and Kirtipur), one sub-metropolitan city (Lalitpur), and one metropolitan city (Kathmandu) in the valley. The population in designated urban areas of Kathmandu Valley has increased considerably (Table 2.4).

Urbanisation has not been uniform throughout the country. Most urbanised areas are in Kathmandu Valley,

Table 2.1: Distribution of population by district, 1991-2001

District	1991	% of total population	2001	% of total population	Annual growth rate
Lalitpur	257,086	1.39	337,785	1.46	2.73
Bhaktapur	172,95	0.94	225,461	0.97	2.65
Kathmandu	675,341	3.65	1,081,845	4.67	4.71
KVD*	1,105,379	5.98	1,645,091	7.10	4.06

Source: CBS 2003b

* Kathmandu Valley districts

Table 2.2: Population density by district, 1981-2001 (person/sq. km.)

District	Area in sq. km	1981	1991	2001
Lalitpur	385	479	670	877
Bhaktapur	119	1,343	1,453	1,895
Kathmandu	395	1,069	1,710	2,739
KVD	899	852	1,230	1,830

Source: CBS 2003b

Table 2.3: Sex ratio by district, 1981-2001

District	1981	1991	2001
Lalitpur	113	103	104
Bhaktapur	105	100	104
Kathmandu	117	108	114

Source: CBS 2003b

which contributes significantly to the overall urbanisation status of the country. The urban population density of Kathmandu Valley is 10,265 (the population is 995,966 and the area 97 sq.km.) (CBS 2003b). On the other hand, the rural population is also increasing slowly in the valley. The average annual growth of the rural population is comparatively higher than for Nepal as a whole (Table 2.5).

¹ Number of persons per square kilometre

² Ratio of males to females x 100 (also referred to as the masculinity ratio.)

Table 2.4: **Urban growth and urban population growth trend, 1952/54 – 2001³**

Region	1952/54	1961	1971	1981	1991	2001
Kathmandu Valley	196,777	218,092	249,563	363,507	598,528	995,966
Nepal	238,275	336,222	461,938	956,721	1,695,719	3,227,879
Percentage distribution of urban population						
Kathmandu Valley	82.6	64.9	54.0	38.0	35.3	30.9
Level of urbanisation (in %)						
Kathmandu Valley				47.4	54.1	60.5
Nepal				6.4	9.2	13.9

Source: CBS 2003b

Table 2.5: **Average annual growth rates of urban and rural population, 1952/54 – 2001**

Region	1952/54		1961–71		1981		1991		2001	
	U	R	U	R	U	R	U	R	U	R
Kathmandu Valley	1.29	1.53	1.36	4.32	3.83	0.87	5.11	2.32	5.22	2.50
Nepal	4.40	1.56	3.23	2.03	7.55	2.40	5.89	1.79	6.65	1.72

Key: U = urban; R = rural

Source: CBS 2003b

Transient population

Kathmandu Valley is like a hub for the wider population. The enactment of the Local Self Governing Act (LSGA) 1999 is expected to decrease the flow of the transient population to some extent. Large pockets of the population move in and out of the valley for different purposes, mainly seeking services and institutional activities. Uneven allocation of resources for development and institutionalisation in the valley has given rise to this movement of population.

The transient population is distributed sporadically throughout the valley, determined by the objectives of their visits. The main reasons for coming to the valley are higher education, medical check-ups, pilgrimages, bureaucratic formalities, visiting relatives, internal tourism, and official visits. A large proportion of this population lives in Kirtipur municipality because they are students at Tribhuvan University; in *dharmashalas* of different pilgrimage sites or temples like Pashupatinath, Sankhu, and Mata Tirtha; and in hotels and lodges in urban areas, near bus stations, and hospitals.

In the last five years, people seeking jobs overseas have constituted a large proportion of transient population. The nature and flow of population depends upon the time of year and festivals as well. Such a population

³ The data for Madhyapur and Kirtipur municipalities are not available in the censuses of 1971, 1981, 1991.

⁴ Migrant population refers to internal and external migrants.

flow exerts pressure on the environment and natural resources because it adds to the consumption of petroleum products for commuting and for cooking; and it also adds to solid waste and sewage which has a negative impact on the environment.

Migration

The total population of the Kathmandu Valley is the sum of local inhabitants, migrant population⁴, and transient population. The migrant population accounted for 11.1% of the total urban population in 1981. This proportion has increased in the past decade because of the conflict. A study carried out by ICIMOD in 1993 (MOPE 1999) revealed that migration contributed to less than 10% of the urban population of Kathmandu between 1952 and 1961, about 6% between 1961 and 1971, about 42% between 1971 and 1981, and over 64% between 1981 and 1991. The percentage of migrant population is comparatively less in Lalitpur (47% between 1981 and 1991) and Bhaktapur districts (12% between 1981 and 1991).

Internal migrants comprised of 10.2% of the population, while foreign-born external migrants comprised of 0.9% in 1981, increasing in 1991 to 19.4 and 2.7% respectively. Earlier most migrants were from the hills (56%) compared to the mountains (32%) and Terai (12%). In the last three decades, the trend has shifted; migrants from the Terai (36%) and from the hills (25%) have increased. This shift is directly linked to the flourishing garment and brick industries in Kathmandu between 1981 and 2001. The larger proportion of migrants are workers in manufacturing and textile industries such as brick industries, garment industries, carpet weaving, and dyeing industries. According to a study carried out by The World Conservation Union (IUCN) and the National Planning Commission (NPC) in 1994 (MoPE 1999), approximately 74% of the workers in the different industries in the valley are migrants.

According to the 'National Living Standards Survey (NLSS)-II', carried out by the Central Bureau of Statistics in 2003/2004 (CBS 2004) among migrants, an overwhelming majority (54%) gave 'family reasons' for migration, followed by 'looking for a job' (18%), 'easier life style' (14%), and education/training (9%).

The percentage of the population migrating has increased considerably because of the conflict. The displaced population migrates to the district

headquarters and ultimately to the valley in search of employment, government aid, security, and shelter. This has already had an adverse impact on the urban environment. However, hopefully with the peace talks, many may return home.

Education

According to data from the Department of Education (2001), the enrollment of children in primary schools in the valley is around six per cent of the total primary enrollment in Nepal. The enrollment of girls in primary school is 47.7%. The data also reveal that the net enrollment ratio (NER)⁵ is 90.5%; the NER for boys is 91.4% and it is 89.5% for girls.

The literacy rate of 77.2% for Kathmandu district is the highest in the country. The literacy rate increased from 50% in 1981, to 70.1% in 1991, and 77.2% in 2001. The literacy rate for boys was 86.5% whereas it was 66.6% for girls in 2001. Table 2.6 presents the literacy rates for the three districts and can be compared with those for the country as a whole. The literacy rate for the valley is higher than 70% compared to 54.1% for the country as a whole.

The urban poor

Data from the 1995/96 and 2003/04 Nepal Living Standards surveys (NLSS-I and II) carried out by the Central Bureau of Statistics (CBS) reveal that poverty dramatically declined in Nepal between 1995-96 and 2003-04 by about 26% over a period of eight years (CBS 2004).

Between 1995-96 and 2003-04, poverty declined in Kathmandu Valley by 23%, while in other urban areas it declined by 59% (CBS 2005). The lower rate of decline may be attributed to an increase in the urban poor and also to the higher rate of migration of poor people to the valley.

Table 2.7 shows the distribution of the population, distribution of the poor, and the poverty head count rate for the valley, other urban areas, and Nepal as a whole. The figures from the table show that the distribution of the population for Kathmandu as well as other urban areas has increased more than 100% between 1995-96 and 2003/04. The distribution of the poor has also increased in the valley and in other urban areas, but the

Table 2.6: **Literacy rate in the districts of Kathmandu Valley (6 years and above in %)**

Region	1981		1991		2001		
	Total	Total	Male	Female	Total	Male	Female
Lalitpur	37.1	62.4	76.5	48.0	70.9	81.0	60.4
Bhaktapur	32.4	58.8	74.8	42.7	70.6	81.1	59.6
Kathmandu	50.0	70.1	82.2	57.0	77.2	86.5	66.6
Nepal	23.3	39.6	54.5	25.0	54.1	65.5	42.8

Source: CBS 2003b

Table 2.7: **Poverty measurement: Kathmandu Valley vs. other urban areas and Nepal**

	Poverty Head Count Rate			Distribution of the Poor			Distribution of Population		
	95/96	03/04	Change %	95/96	03/04	Change %	95/96	03/04	Change %
Kathmandu Valley	4.3	3.3	-23	0.3	0.6	118	2.6	5.4	110
Other Urban	31.6	13.0	-59	3.3	4.1	23	4.4	9.7	121
Nepal				100	100	-	100	100	-

Source: CBS 2005

figures for the valley have more than doubled whereas those for other urban areas have only increased by 23%. Similarly, the decrease in the poverty head count rate for the valley is 23% only compared to 59% for other urban areas.

Infrastructural Services

Administrative institutions

Government institutions

There are 21 ministries; most of them have a network of regional and district offices established throughout the country. The central organisation in the valley is not only limited to the executive branch of the government but also includes the legislative and judicial branches.

The Royal Palace, both Houses of Parliament, and the Supreme Court are also situated in the valley. Besides the Supreme Court there are six other courts, including the Appellate Court, the Administrative Court, the Revenue Jurisdiction Court, and three districts courts in Kathmandu, Lalitpur, and Bhaktapur.

Commissions, councils, and committees. Election Commission, the Commission for Investigation into Abuse of Authority, the Office of the Auditor General, the Office of the Attorney General, the Parliamentary Secretariat, and the Public Service Commission.

⁵ Number of students in the officially defined age group for a given level of education expressed as a percentage of the population in the corresponding age group.

There are also the NPC, the Judicial Service Commission, the Water and Energy Commission, and the Commission for Information Technology.

Regional institutions, valley-level institutions.

Several ministries have established regional offices in the valley. Valley-level institutions include three types of organisation: a) those concerned with the valley; b) those concerned with individual districts within the valley; and c) local governments.

Kathmandu Valley Town Development Committee (KVTDC) has been established under the Chairmanship of the Minister / State Minister of Physical Planning and Works and is represented by the Secretaries of the Ministry of Physical Planning and Works (MoPPW); Ministry of Home Affairs (MoHA); Ministry of Water Resources (MoWR); Ministry of Information and Communications (MoIC); Ministry of Finance (MoF); Ministry of Forest and Soil Conservation (MoFSC); and Ministry of Law, Justice and Parliamentary Affairs (MoLJPA). Vice Chairman of the National Planning Commission (NPC) is the Vice Chairman for the committee. The Director General of the Department of Urban Development and Building Construction (DUDBC), the Chairpersons for the three district committees of the valley, and the Mayors of the five Municipalities in the valley are also members of the committee. The Chief for the KVTDC Office serves as the Member-Secretary to the Committee. Under KVTDC, there are three district-level Town Development Implementation Committees (TDICs) for Kathmandu, Lalitpur, and Bhaktapur. The main responsibility of KVTDC is to approve and coordinate the plans prepared by the three TDICs.

The administrative section of all three districts is headed by the Chief District Officer appointed by the Ministry of Home Affairs. There are three district development committees (DDCs) in the valley. Each DDC is made up of elected representatives from the village development committees (VDCs) and Municipalities of the corresponding Districts.

Local governments. There are five municipalities in the valley; namely, Kathmandu Metropolis, Lalitpur Sub-Metropolis, Bhaktapur, Madhyapur (Thimi), and Kirtipur. There are 41 VDCs in Lalitpur, 13 VDCs in Bhaktapur, and 57 VDCs in Kathmandu (CBS 2002).

Other Institutions. Besides the above-mentioned government institutions, three other government institutions are situated in Kathmandu Valley: i) the

Employee Provident Fund alone employs about 779 persons and is responsible for managing the deposits of different government, semi-government, and private sector agencies, ii) National Cooperative Development Board employs about 60 persons and is responsible for developing the cooperatives in the country, and iii) Kathmandu Urban Development Project (KUDP).

Other independent donor-funded projects and government organisations are involved in the development of Kathmandu Valley, among these projects are the Urban Environment Improvement Project (UEIP), the Kathmandu Valley Watershed Management Project (KVVMP), the Metropolitan Environment Improvement Programme (MEIP), the Urban Environment Management Programme (UEMP), and The Water Supply and Sanitation Board.

Semi-government institutions

Corporations and government companies/centres.

The corporations in the valley include the Agricultural Inputs' Corporation, the Dairy Development Corporation, Nepal Food Corporation, Nepal Oil Corporation, and Nepal Water Supply Corporation (NWSC). In addition there are 20 more corporations and related organisations such as the Agriculture Lime Industry Ltd., Bhaktapur Brick Factory, Credit Guarantee Corporation Ltd., Gorkhapatra Sansthan, Industrial District Management Ltd., Janak Education Materials' Centre Ltd., National Construction Company of Nepal, National Productivity and Economic Development Centre, National Trading Ltd., Nepal Metal Co. Ltd., Nepal Rosin and Turpentine Ltd., Nepal Telecommunications' Corporation Ltd., Nepal Transit and Warehousing Company Ltd., Nepal Transport Company, Nepal Drug Ltd., Guthi Sansthan, and Salt Trading Corporation Ltd.

Authorities. Nepal Electricity Authority regulates electricity development, production, use, and management in the valley and throughout the country. Similarly, Nepal Telecommunications' Authority and the Civil Aviation Authority of Nepal are responsible for the management of telecommunications and air traffic management throughout the country. The Tourism Development Authority is responsible for promotion and development of tourism in the country.

Trusts. National Trust for Nature Conservation, Lumbini Development Trust, and Pashupati Area Development Trust are the major trust offices located in the Kathmandu Valley.

Non-government organisations (NGOs)

The Social Services' National Coordination Council regulates and supervises NGOs, whereas the Social Welfare National Coordination Council (SWNCC) handles most of the funding agencies. According to the Social Welfare Council (SWC), there are altogether 7,004 NGOs registered with SWC operational in the Kathmandu Valley. Kathmandu has 5,969, Lalitpur 856, and Bhaktapur 179 NGOs.

International non-government organisations (INGOs)

According to SWC, there are 157 international non-government organisations (INGOs) across the country: of these almost all have head offices in Kathmandu Valley and more than 80% are working in the valley.

Residential diplomatic missions in Kathmandu Valley

Altogether there are 25 residential diplomatic missions in Kathmandu Valley. There are also 17 multilateral donor agencies in Nepal and all have offices in the valley (MoPE 1999). There are 15 bilateral donor agencies in the valley.

The Secretariat of the South Asian Association for Regional Cooperation (SAARC) initiated by seven countries; namely, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka – and at present with Afghanistan added as a new member; is also located in Kathmandu. The secretariat complex was established in January 1987. The role of the secretariat is to coordinate and monitor the implementation of SAARC activities, service the meetings of the Association, and serve as the channel of communication between SAARC and other international organisations. The Secretariat has also been increasingly utilised as the venue for SAARC meetings. The Secretariat is comprised of the Secretary General, seven Directors, and the General Services' Staff.

Transport network

The Kathmandu Valley air and ground transport networks are described below.

Air transport

Tribhuvan International Airport (TIA) in Kathmandu is the only international airport in Nepal. There are 12 international airlines operating at present. There are 43 domestic airports connected to TIA and eight private, domestic airlines. There is only one government-owned airline, i.e., Nepal Airlines' Corporation, and it has a limited network within and outside the country.

Ground transport

The road network within the valley is inadequate. Roads are not classified according to vehicle types. With increased vehicular traffic and common tracks for all types of vehicles in the valley, traffic congestion is increasing and contributing to excessive vehicular emissions.

Sajha Bus Service, as a public limited company, carries passengers from and outside the valley to other parts of the country. There is a trolley bus service (electrically operated) but it is limited to a small section of one route in the valley.

Private transport includes buses, microbuses, vans, cars, jeeps, and three wheelers, operated by petroleum, liquid petroleum gas (LPG), and batteries.

According to the Department of Transport Management (DoTM), the total number of vehicles registered in Bagmati Zone was 224,098 up to 2003-04 (2060B.S). The total number of vehicles registered in 2005-06 (2062/63) was 26,781: 801 buses; 245 minibuses; 614 trucks, tractors, dozers, cranes, tippers; 3,493 cars, jeeps, and vans; and 21,628 motorcycles.

Assuming that the annual addition of vehicles in the year 2004-05 is equal to the previous year, the present trend in addition of vehicles in Kathmandu Valley is estimated to be around 12% per annum.

According to the latest statistics available from the Department of Roads in 2002, district-wise road length, population influenced, and area are presented in Table 2.8. Also, from the same publication, category-wise road lengths are presented in Table 2.9.

The main institutions looking after transport systems in the Kathmandu Valley are The Department of Roads, Department of Transportation Management, Department of Civil Aviation, and Tribhuvan International Airport Authority. These Departments are functioning in coordination with the Ministry of Physical Planning and Works, Ministry of Labour and Transport Management, Ministry of Local Development, and the Ministry of Tourism and Civil Aviation.

Communication facilities

Postal services. The postal service is the oldest means of communication and it reaches all the villages. Currently the postal service network includes the

Table 2.8: Road length, population influenced, and area in the districts of Kathmandu Valley

District	Total population in 2001	Total area in km ²	Total length of roads, km	Population influenced per km of road	Road density, km/100 Km ²
Kathmandu	1,081,845	395	813	1,331	206
Lalitpur	337,785	385	337	1,002	88
Bhaktapur	225,461	119	181	1,245	152
KVD	1,645,091	899	1,331	1,236	148

Source: DoR 2004

Table 2.9: Total road length in Kathmandu Valley category-wise

Class	Black top			Gravel road			Earthen road			Total
	Kath	Ltp	Bkt	Kath	Ltp	Bkt	Kath	Ltp	Bkt	
NH	18.85	0.00	14.12	0.00	0.00	0.00	0.00	0.00	0.00	33
FRN	17.05	0.00	23.00	0.00	0.00	0.00	0.00	0.00	0.00	40
FRO	41.19	25.00	00.00	0.00	8.57	0.00	0.00	0.24	0.00	75
DR	82.70	34.00	25.50	104.96	39.90	42.50	105.93	121.40	46.00	603
UR	339.50	84.00	20.00	70.65	16.00	8.00	32.00	8.00	2.00	580
District wise	499.29	14	82.62	175.61	64.47	50.5	137.93	129.64	48	
Total in Valley	725			290			316			1,331

Key: NH = national highway; FRN = feather road (major); FRO = feather road (minor); DR = district road; UR = urban road; Kath = Kathmandu; Ltp = Lalitpur; Bkt = Bhaktapur

Source: DoR 2004

general post office, regional postal directorates, district post offices, area (*ilaka*) post offices, and additional post offices; and their total number is 3,991. There are 142 (NIDI 2006) for the three valley districts. Besides these, a number of private postal care companies provide a wide range of postal services (MoF 2006).

Nepal Telecommunications' Authority. This authority is the regulatory body for telecommunications in Nepal. It is an autonomous body established in 1998 in accordance with the Telecommunications' Act 1997 and Telecommunications' Regulations 1998. Its objective is to foster a favourable and competitive environment for the development, expansion, and operation of telecommunications' services with private sector participation in Nepal.

Nepal Telecommunications' Authority, as of 2005/06 has issued basic telephone service licenses to two agencies, cellular mobile service licenses to two agencies, and internet (including email) licenses to 38 agencies (more than 50,000 customers). Other licenses are given in the following table (Table 2.10).

Extension of telephone services in 58 urban areas, on the basis of the National Population Census 2058 (CBS

2002) and data given in GoN/MoF, July 2006, Economic Survey (2005/06), was found to have reached to 25.40 thousand lines distributed from the 17.64 per thousand lines distributed in 2003/04. International circuit capacity, which enables worldwide telephone links, is 2,990.

Educational institutions

Modern education in Nepal is said to have been introduced after the visit of Prime Minister Jung Bahadur to England in 1850.

Impressed with the system of education there, he established a private English school at the Thapathali Palace to teach his sons. In 1853, Durbar High School was established to provide formal education to the sons of Ranas. During the time of Prime Minister Chandra Shumshere, the school was opened for common people as well. However, the Ranas were not interested in promoting education. During the Rana regime (1846 – 1950), only four high schools and two colleges were established.

After 1950, education has been progressing continuously, specifically in the valley and, as a result, educational institutions, levels of education, and fields of study have been increasing.

Table 2.11 presents the existing number of schools by levels for the three districts and also for the valley.

Table 2.10: Licensing of communications

Type of licensee	Number
Basic Telephone Service Providers	2
VSAT Network Service Providers	10
GMPCS Service providers	2
Video Conferencing Service	1
Local Data Network Service	1
Cellular Mobile Service Providers	2
Internet Service Providers (ISP)	38
Fax Mail Service Providers	6
Radio Paging Service Providers	5
Rural Telecommunications Service Providers	1

Source: Website of Nepal Telecommunication Authority (NTA), 07/08/2006

Table 2.11: Total number of schools by grades and levels

	Primary	Lower Secondary	Secondary	Higher Secondary
Kathmandu	920	671	514	148
Lalitpur	277	147	108	47
Bhaktapur	243	137	85	9
Total in the Valley	1,440	955	707	204

Source: Compiled from NIDI 2006.

Tribhuvan University, the national university in Kirtipur, has five institutes (Engineering; Agriculture and Animal Sciences; Medicine; Forestry Science; and Science and Technology) and four faculties (Law, Management, Education, and Humanities and Social Sciences). The university and colleges and campuses affiliated to all the five universities of Nepal are offering almost all the popular disciplines at different academic levels, including Master's and Doctoral levels, in the valley.

There are three medical and more than 12 engineering colleges offering up to master's level education. The Council for Technical Education and Vocational Training is another regulatory body monitoring the curriculums for technical and vocational training as well as diploma courses in different subjects to produce skilled manpower.

Health services

Kathmandu is a centre for all types of health services. Most of the old, well-equipped and specialised health-care facilities are located in the valley. Health-care service centres are classified into the government or private sectors. Health service centres are also classified into central, district, teaching, health centre, primary health care units, health posts, and sub-health posts. A summary of health facilities is given in Table 2.12.

The central hospitals in Kathmandu Valley are Bir Hospital (general medicine and surgery), Teku Hospital, the Maternity Hospital, Sahid Gangalal Heart Centre, Kanti Children's Hospital, and Patan Mental Hospital.

There are also two eye hospitals in Kathmandu district and they are in the non-government sector. All three teaching hospitals are in Kathmandu district: the Institute of Medicine, Maharajgunj (under Tribhuvan University), Nepal Medical College, Jorpati, and Kathmandu Medical College, Sinamangal (both affiliated with Kathmandu University).

Table 2.12: Health facilities available in Kathmandu Valley

Category	Kathmandu	Lalitpur	Bhaktapur	Total
Central Hospital	5	1	0	6
District Hospital	0	1	1	2
Teaching Hospital	3	0	0	0
Health Centres	1	0	0	1
Primary Health Care Units	7	3	0	10
Health Posts	5	9	0	14
Sub-health Posts	53	29	0	82
Private Hospitals & Nursing Homes	23	5	2	30
Total	97	48	3	145

Source: DOH 2006

Private health facilities are mostly of the polyclinic type. Some of them provide special treatment facilities for heart care, orthopaedic care, gastrointestinal care, kidney care, and dental care. The number of private facilities shown in Table 2.12 does not include the numerous clinics run by individual doctors.

Utilities

The status of utilities, mainly electricity and drinking water, is presented here.

Electricity

Not all households in the valley have electricity. The proportion of households having electricity in the three districts is given in Table 2.13 and is based on data from the Nepal Human Development Report 2001 (UNDP 2002). The overall proportion of households connected to electricity is approximately 95%.

Table 2.13: Proportion of households with electricity

S. No.	District	Total households	Proportion of households in %
1	Kathmandu	235,387	96.81
2	Lalitpur	68,922	87.64
3	Bhaktapur	41,253	96.41

Source: NIDI 2006

Drinking water

Not all households and people in the valley receive safe drinking water. The dependency of households for drinking water on a variety of sources can be seen from Table 2.14.

Table 2.14: Sources of drinking water

	Kathmandu		Lalitpur		Bhaktapur		Kathmandu Valley	
	HH	%	HH	%	HH	%	HH	%
Tap	197,851	84.1	57,237	83.0	30,755	73.5	285,843	82.6
Well	14,714	6.3	6,745	9.8	4,843	11.6	26,302	7.6
Tube well	13,478	5.7	825	1.2	2,977	7.1	17,280	5.0
Spout	6,082	2.6	3,099	4.5	2,632	6.3	11,813	3.4
River/ stream	195	0.1	113	0.2	29	0.1	337	0.1
Others	1,616	0.7	477	0.7	277	0.7	2,370	0.7
Not stated	1,381	0.6	425	0.6	339	0.8	2,145	0.6
Total	235,317	100	68,921	100	41,852	100	346,090	100

Key: HH = household

Source: NWSC 2005

Table 2.15: Population receiving drinking water

Districts	Estimated population 2005	Population benefiting 2005	Percentage benefiting
Kathmandu	1,246,110	947,630	76.05
Lalitpur	366,010	286,250	78.21
Bhaktapur	244,130	152,270	62.37
Total	1,856,250	1,386,150	74.67

Source: NWSC 2005

Based on the data for 2005 given by the Department of Drinking Water and Sewerage, the population and percentage of the population receiving water by districts and also for the valley are given below in Table 2.15. It is seen that less than 75% of the population receives drinking water supplies.

Economic Structure

Trade links (international and bilateral agreements)

Trade links with India and the Tibetan Region of China

Kathmandu Valley developed as an entrepôt, a centre of trade links with India and Tibet. Anshuvarma, the talented and influential officer who became king, ending the Lichhavi dynasty, opened the trade route to Tibet. One of his daughters, Bhrikuti, was married to Songsten Gampo, an influential ruler of Tibet at that time (Regmi 1999).

Although Nepal has developed trade links with other countries, the majority of the trade is still with India: exports in the fiscal year 1965-66 were 98.8% to India and only 1.2% to other countries. In the fiscal year 2003-04,

59.3% went to India and 40.7% to other countries. The major trading partners for exports after India are the United States, Germany, the U.K., Italy, France, Canada, and Japan. The main items of export are readymade garments, woollen carpets, woollen and pashmina goods, and handicrafts: manufacturing of these is mainly in the Kathmandu Valley.

Similarly, imports in the Fiscal Year 1965-66 were 97.6% from India and 2.4% from other countries. These figures changed to 58.7% from India and 41.3% from other countries in 2003-04. The major trading partners for imports after India are Singapore, the People's Republic of China, Thailand, Malaysia, Indonesia, and the Republic of Korea. The majority of imports are handled through the valley.

Institutions working in the trade sector

The Ministry of Industry, Commerce and Supplies (MoICS) is the main government body responsible for trade promotion. This Ministry has a Department of Commerce (DoC) and a Trade Promotion Centre (TPC) to assist in the implementation and promotion of bilateral and multilateral trade.

Trade agreements ratified by Nepal

Nepal signed the South Asian Free Trade Agreement in January 2004 with the other countries of the South Asian Association for Regional Cooperation (SAARC). Nepal was admitted (along with Bhutan) in February 2004 into the Bangladesh, India, Myanmar, Sri Lanka, and Thailand consortium for socioeconomic cooperation (BIMSTEC) which was established in June 1997. Nepal became the 147th member of the World Trade Organisation (WTO) on 23 April 2004, and it will need to improve its competitiveness to benefit from these memberships and agreements.

International trade conventions ratified by Nepal

Nepal has ratified the following conventions on trade and environment (ADB/ICIMOD 2006).

- Plant Protection Agreement for South-East Asia and the Pacific Region 1956
- Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- Montreal Protocol on Substances that Deplete the Ozone Layer 1987 and its amendments
- Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Disposal

- Convention on Biological Diversity 1992 and the Cartagena Protocol on Biosafety 2000
- United Framework Convention on Climate Change 1992 and the Kyoto Protocol 1997 (accession)
- International Tropical Timber Agreement 1994

Industries (cottage and others)

A 'Udyog Parishad' (Industrial Development Board) was established in 1935, and promulgation of the Company Act in 1936 paved the way for industrial development.

Kathmandu Valley has many traditional cottage industries. These include textile weaving (handlooms), brick and tiles, pottery, handicrafts (e.g. idol making), precious ornaments, traditional food processing and preservation (such as rice milling, beaten rice, oil milling, sweetmeats, and traditional dairy products), wooden furniture and carving, bamboo crafts, traditional textile printing and dyeing, traditional art and paintings, copper and brass metal utensils, herbal medicines, forges, and cordwaining (leather crafts).

As it is the capital and all the important institutions are located here, particularly the Nepal Industrial Development Corporation, private small and medium-scale industries have developed. Three industrial districts, namely, Balaju Industrial District in Balaju, Kathmandu, Patan Industrial Estate in Lagankhel, Lalitpur, and Bhaktapur Industrial Estate in Byasi, Bhaktapur, were established. Industries flourished during the 1970s and 1980s. Public sector brick factories, leather tanning, and shoe manufacturing and cement industries were also established. Food and beverages, plastic products, construction materials, carpets, and readymade garment industries have flourished. However, the number of industries and employment provided by them have decreased drastically within the last decade. Table 2.16 presents the number of industries and employment provided in the three districts from 1991-92 and 2001-02 (CBS 1994, CBS 2003a) and Table 2.17 presents the existing status of the three industrial districts in the Valley.

Outside the industrial districts, industries are concentrated along the Kathmandu-Bhaktapur and Kalanki-Thankot roads. The carpet industries are established around the Swayambhu and Boudha areas. Handicraft industries, especially metal handicrafts, are mainly concentrated in the Lalitpur area and brick kilns mainly in Bhaktapur and Lalitpur.

Table 2.16: Number of industries and employment

Year	1991/92		2001/02	
	District	No. of Establishments	Employment	No. of Establishments
Lalitpur	628	34,688	236	18,364
Bhaktapur	145	15,155	97	8,171
Kathmandu	1,401	74,825	514	33,883
Total	2,174	124,668	847	60,418

Source: CBS 1994, 2003a

Table 2.17: Status of the industrial districts in the valley

Description	Balaju Industrial District	Patan Industrial Estate	Bhaktapur Industrial District
Establishment year (B.S.)	2016	2020	2036
Assisting country	USA	India	Germany
Total area in ropani	696	293	71
Developed area	100%	100%	100%
Leased area	521	218	58
Remaining	-	-	-
Service area	173	75	13
Government sector investment (million Rs.)	13.2	14.3	13.6
Private sector investment (million Rs.)	2,000	408.1	280
Total no. of industries	93	106	34
Operational industries (no.)	74	90	28
Under construction (no.)	10	1	2
Closed (no.)	9	15	4
Employment provided to	3,800	1,472	700
Electricity (kVA)	4,000	1,500	900
Water use ('000 litres per day)	412	21	-
Internal road (km)	5.2	5	0.69

Source: IoM 2005

The study carried out by IUCN in 1991 in collaboration with the NPC identified Kathmandu, Lalitpur, and Bhaktapur as three of the 15 industrial pollution hotspots in the country (IUCN 1991). If we look at the types of industry, most of the polluting industries such as cement, textile dyeing, tanning, and distilling have been closed or transferred to places outside the valley. Of the remaining industries, the main polluting industries in the valley are only small scale, and these include brick kilns; wool dyeing and carpet washing; textile dyeing; pottery; polyurethane and rubber foam; beaten rice; dairy products; metal casting; metal craft industries and gold plating; and alcoholic and non-alcoholic beverages.

The public sector industries have been either privatised or closed. Bansbari Leather and Shoe factory was

privatised on the condition that it be relocated outside the valley. Himal Cement Factory has been closed.

With the increase in industrial pollution and rising awareness of the general public about the adverse impact of industrial pollution, complaints augmented and measures were taken to address the issue. The Industrial Promotion Board (IPB) formulated an industrial location policy. There have been revisions to the policy and the latest location policy⁶ for industries specifies the following.

- The types of industry (List A) that can be established in municipal areas of the valley
- Types of industry (List B) that are not allowed in the valley
- All types of industry that have pollution prevention and safety measures can be established inside any designated industrial district.

The lists of industries (Lists A & B) are given in Annex 3.

Institutional arrangements. The Ministry of Industry, Commerce and Supplies (MoICS) and departments under it; namely, the Department of Industry (Dol), Department of Cottage and Small Industries (DCSI), Nepal Bureau of Standards and Metrology (NBSM), Department of Mines and Geology (DMG), Office of the Company Registrar, and the Cottage and Small Industries' Development Board (CSIDB) are the main organisations for policy formulation and implementation on development of industries in the country. The MoICS, Dol, DCSI, and NBSM are also responsible for approval of Initial Environmental Examinations (IEEs) and they are involved in the approval of Environmental Impact Assessments (EIAs) for establishing new industries and monitoring existing industries.

The National Productivity and Economic Development Centre, Industrial Enterprise Development Institute, and Industrial District Management Limited are promotional organisations in the government sector.

Some notable achievements. The following measures were taken to prevent and control industrial pollution.

- Effluent discharge standards have been promulgated.
- Environment management systems (EMS) have been implemented in more than 20 units in the valley (and more than 70 in Nepal).
- Three industries in the valley have ISO 14001 certification.

- Pollution permits are issued in accordance with the Environment Protection Act (EPA).
- Cleaner production methods have been introduced into more than 100 industries by the Environment Sector Programme Support (ESPS) and six units by the MoICS carried out by Pace Nepal Pvt. Ltd. inside Kathmandu Valley.
- Most polluting industries have been closed or relocated – e.g. Himal Cement Factory, Bansbari Leather and Shoe Factory
- Moving Chimney Bull's trench brick kilns have been banned.
- The DCSI/Dol have laid down stringent conditions for the approval of IEE for industries involved in brick and stone crushing.
- A location policy has been introduced for industries in municipalities both inside and outside Kathmandu Valley

Tourism

Kathmandu Valley is the gateway to Nepal for tourists and their main destination. Ninety per cent of tourists enter through Kathmandu. The valley's rich cultural heritage and its seven designated world heritage sites have contributed to tourism promotion.

Flow of tourists. Tourists began visiting Nepal only after the late 1950s. In 1960, the total number of tourists, excluding Indians, was only 4,017. In 1970, this figure had reached 45,970 and in 1992 it increased to 334,353. The figures for 2004 and 2005 are 385,297 and 375,398 according to the Ministry of Culture, Tourism and Civil Aviation (MoCTCA 2006). The decrease in tourist flow in 2005 was due to the political situation that led to lack of security in the country. The flow is expected to increase once peace is re-established.

Institutional arrangements. The Ministry of Culture, Tourism and Civil Aviation is responsible for policy whereas the Tourism Development Authority is the overall planning and implementation agency.

The private sector. The private sector is becoming more active in this sector. The following associations are contributing actively to promotion and development of tourism.

- Hotel Association of Nepal
- Nepal Association of Travel Agents
- Trekking Agents' Association of Nepal
- Pacific Asia Travel Association, Nepal Chapter

⁶ Based on a decision of the 132nd Meeting of the Industrial Promotion Board (IPB) held on B.S. 2054/1/29 (i.e. 11 May 1997).

Besides these, new sub-sectoral associations have been established. These include Nepal Association of Tour Operators, Tour Guide Association of Nepal, Nepal Association of Rafting Agents, Nepal Mountaineering Association, Non-star Hotel Association, Thamel Tourism Development Committee, Nepal Handicraft Association, Nepal Heritage Society, and Board of Airlines' Representatives of Nepal.

Tourism and environment. If proper consideration is not given, the natural and cultural heritage will continue to deteriorate because of environmental pollution and this will hamper the promotion of tourism. On the other hand, tourist traffic may affect the environment and could also have an adverse impact. The challenge is to strike a balance between environmental protection and tourism development. The collection of entrance fees and their use to improve the environment and preserve and renovate natural and cultural heritage can be effective.

Valley livelihoods

The population census of 2001 recorded 53.6% of the total population of Kathmandu Valley as economically active. Table 2.18 gives the total as well as the economically active population by district and also by gender:

Table 2.19 gives a break down of occupations. Besides agriculture and livestock husbandry, the other activities are manufacturing, trade or business, transport, services, and others.

Table 2.18: Total and economically active population

District	Total			Economically active		
	Total	Male	Female	Total	Male	Female
Kathmandu	877,736	464,153	413,578	455,671 (52%)	302,603 (65%)	153,063 (37%)
Lalitpur	278,502	141,264	137,240	154,071 (55%)	94,943 (67%)	59,136 (43%)
Bhaktapur	182,626	92,348	90,277	107,557 (59%)	63,973 (69%)	43,582 (48%)
Total	1,338,864	697,765	641,095	717,299 (54%)	461,519 (66%)	255,781 (40%)

Source: CBS 2002

Table 2.19: Households by economic activity in Kathmandu Valley

District	Agriculture & livestock	Manufacturing	Trade/business	Transport	Services	Others	Total households
Kathmandu	57,189	6,210	30,896	2,615	24,411	9,694	235,387
Lalitpur	33,839	3,978	8,448	1,149	12,211	2,249	68,922
Bhaktapur	28,183	1,463	4,693	454	4,280	3,302	41,253
Kath. Valley	119,211	11,651	44,037	4,218	40,902	15,245	345,562

Source: NIDI 2006

Under manufacturing activities, notable are carpet and textile weaving, and these include pashmina, readymade garments, handicrafts in metal and wood, and paintings (thanka painting). New types of service units have emerged such as Internet/Cyber parlours, computer services, photocopying, and communication call centres.

Institutional Framework for the Environment

This section discusses environmental governance in Nepal as a whole and in the Kathmandu Valley in particular. It covers environmental policies and plans; development and enforcement of environmental laws and regulations, norms, and standards; and establishment and operation of relevant institutions for supervising, executing, and monitoring programmes.

Nepal has implemented planned development programmes since 1956, and it is now almost at the end of the Tenth Plan (2002/03 – 2006/07). The NPC has attempted to integrate environmental issues into sustainable development and poverty reduction. Protection of natural resources has been emphasised. Natural resource conservation was emphasised in the first three plans. Sectoral policies included environmental concerns from the fourth plan onwards. Environmental considerations have been consistently included in the national development plans from the Eighth Plan (1992/93 – 1996/97) (ADB/ICIMOD 2006).

The National Conservation Strategy 1988, Industrial Policy 1992, Nepal Environmental Policy and Action Plan (NEPAP) 1993, Tourism Policy 1995, Solid Waste Management Policy 1996, National Water Supply Sector Policy 1998, Forest Sector Policy 2000, Hydropower Development Policy 2001, Nepal Biodiversity Conservation Strategy 2002, Leasehold Forestry Policy 2002, Water Resource Strategy Nepal 2002, National Wetland Policy 2003, Irrigation Policy 2003, and the Sustainable Development Agenda for Nepal 2003 have emphasised environmental considerations, minimisation of the adverse impacts of development projects on the environment and biodiversity, and environmental protection.

Legal and legislative framework

Provisions in the Constitution of 1990

Article 26 of the Constitution of Nepal 1990 (Part 4) states the following.

- The state shall pursue a policy of mobilising the natural resources and heritage of the country in a manner useful and beneficial to the interests of the nation.
- The State shall give priority to the protection of the environment and also to the prevention of its further damage by physical development activities by increasing the awareness of the general public about environmental arrangements for the special protection of the rare wildlife, the forests, and vegetation.

Environmental legislation

Environmental considerations taken into account in sectoral policies and provisions were included in related sectoral acts before the promulgation of the Environment Protection Act (EPA) and Environment Protection Regulations (EPR) in 1997 after the formation of the then Ministry of Population and Environment (MoPE). This act and these regulations have given a legal context in which to approach approval of new development activities and prevention as well as control of pollution. Pollution control certificates, inspections by environmental inspectors, establishment of environmental laboratories, establishment and use of environment protection funds, incentives for good work, and compensation for adverse impacts are included in these legislations (MoPE 2000).

The Local Self Governance Act (LSGA) 1999 gives more autonomy to village development committees (VDCs), district development committees (DDCs), and municipalities to manage local natural resources and to integrate environmental resource management and environmental planning. Under the EPA and EPR, environmental standards have been developed and promulgated. These include the following.

- National ambient air quality standards for Nepal
- Nepal vehicle mass emission standards
- Generic standards
 - Tolerance limits to industrial effluent discharge into inland surface waters
 - Tolerance limits to industrial effluent discharge into public sewers
 - Tolerance limits to wastewater discharge into inland surface waters from combined wastewater treatment plants (CWTPs)

- Tolerance limits to the discharge of industrial effluents to inland surface water by nine industrial sectors: tanning, wool processing, fermentation, vegetable ghee and oil, paper and pulp, dairy products, sugar milling, cotton textiles, and soap industries.

Nepal is also party to 21 environment-related international conventions and has obligations to fulfill its commitments at national as well as at global level. Nepal is active in the following conventions.

- Climate Change
- Protection of the Ozone Layer
- Biological Diversity
- Combatting Desertification
- International Trade in Endangered Species of Wild Flora and Fauna
- Wetlands
- Tropical Timber
- Persistent Organic Pollutants

Administrative framework

The following bodies administer the plans and programmes.

- Parliamentary Committee on Natural Resource and Environmental Protection
- National Development Council
- Environmental Protection Council
- National Planning Commission (NPC)
- Ministry of Environment, Science and Technology (MoEST)
- Ministry of Forest and Soil Conservation (MoFSC)
- Ministry of Industry, Commerce and Supplies (MoICS)
- Ministry of Local Development (MoLD)
- Ministry of Agriculture and Cooperatives (MoAC)
- Ministry of Water Resources (MoWR)
- Ministry of Physical Planning and Works (MoPPW)

In addition, the judiciary, which is the guardian of the constitution, is responsible for environmental justice. VDCs, DDCs, and Municipalities also have a role to play in the administration of environmental aspects. Nepal Electricity Authority, Nepal Agricultural Research Council, Nepal Academy of Science and Technology, the Solid Waste Management Resource Mobilisation Centre, and Nepal Water Supply Corporation are also important stakeholders. Besides these, private sector organisations like the Federation of Nepalese Chambers of Commerce and Industry (FNCCI), NGOs, INGOs, Community-based organisations, professional societies, academic institutions, the media, and civil society also contribute to the management of environmental issues.